

AMENDMENTS TO THE CLAIMS

1-40. (Cancelled)

41. (New) An ultrasonic diagnostic device that generates and displays an ultrasound image containing an object which is subject to examination in accordance with reflection of ultrasound, said ultrasonic diagnostic device comprising:

an automatic contour extracting unit operable to extract a final contour of the object from the ultrasound image by performing a predetermined operation on the ultrasound image;

an automatic capacity calculating unit operable to calculate a capacity of the object by using the final contour extracted by said automatic contour extracting unit; and

a measurement display unit operable to display the capacity calculated by said automatic capacity calculating unit;

wherein said automatic contour extracting unit includes:

an initial contour extracting unit operable to roughly extract an initial contour of the object; and

a dynamic contour extracting unit operable to accurately extract the final contour by using the initial contour extracted by said initial contour extracting unit as an initial value and by applying an active contour model to the object within the ultrasound image; and

wherein said measurement displaying unit is operable to display the capacity while leaving previously calculated capacities displayed so as to display a transition of capacity over time.

42. (New) The ultrasonic diagnostic device of claim 41, wherein:

said automatic contour extracting unit is operable to extract a contour of a left ventricle of a heart as the final contour;

said automatic capacity calculating unit is operable to calculate a capacity of the left ventricle; and

said measurement displaying unit is operable to display the capacity of the left ventricle while leaving previously calculated capacities displayed to thereby display a

transition of the capacity of the left ventricle over time.

43. (New) An ultrasonic diagnostic device that generates and displays an ultrasound image containing an object which is subject to examination in accordance with reflection of ultrasound, said ultrasonic diagnostic device comprising:

- an automatic contour extracting unit operable to extract a final contour of the object from the ultrasound image by performing a predetermined operation on the ultrasound image;

- an automatic capacity calculating unit operable to calculate a capacity of the object by using the final contour extracted by said automatic contour extracting unit; and

- a real time control unit operable to have an operation repeatedly performed at a fixed frame rate, the operation including: (a) generation of the ultrasound image; (b) the extraction of the final contour by said automatic contour extracting unit; and (c) the calculation of the capacity of the object by said automatic capacity calculating unit;

- wherein said automatic contour extracting unit includes:

- an initial contour extracting unit operable to roughly extract an initial contour of the object; and

- a dynamic contour extracting unit operable to accurately extract the final contour by using the initial contour extracted by said initial contour extracting unit as an initial value and by applying an active contour model to the object within the ultrasound image; and

- wherein said real time control unit includes a frame rate control unit operable to monitor the operation and change the frame rate to have the operation completely performed.

44. (New) An ultrasonic diagnostic device that generates and displays an ultrasound image containing an object which is subject to examination in accordance with reflection of ultrasound, said ultrasonic diagnostic device comprising:

- an automatic contour extracting unit operable to extract a final contour of the object from the ultrasound image by performing a predetermined operation on the ultrasound image;

a contour correcting unit operable to correct the final contour extracted by said automatic contour extracting unit in accordance with either interaction with an operator or a standard that said contour correcting unit stores; and

a use ascertaining unit operable to determine, for one of the extracted final contour and the corrected final contour, whether the final contour is used for subsequent operation in accordance with interaction with the operator;

wherein said automatic contour extracting unit includes:

an initial contour extracting unit operable to roughly extract an initial contour of the object; and

a dynamic contour extracting unit operable to accurately extract the final contour by using the initial contour extracted by said initial contour extracting unit as an initial value and by applying an active contour model to the object within the ultrasound image.

45. (New) The ultrasonic diagnostic device of claim 44, further comprising an automatic capacity calculating unit operable to calculate a capacity of the object by using the final contour determined to be used by said use ascertaining unit.

46. (New) The ultrasonic diagnostic device of claim 45, further comprising a three-dimensional image generating unit operable to accumulate each final contour determined to be used so as to generate and display a three-dimensional image for the object.

47. (New) An ultrasonic diagnostic device that generates and displays an ultrasound image containing an object which is subject to examination in accordance with reflection of ultrasound, said ultrasonic diagnostic device comprising:

an automatic contour extracting unit operable to extract a final contour of the object from the ultrasound image by performing a predetermined operation on the ultrasound image; and

an image normalizing unit operable to normalize the ultrasound image by converting a density of pixels of the ultrasound image in such a way as to make a density distribution of the ultrasound image satisfy a predetermined condition;

wherein said automatic contour extracting unit includes:

an initial contour extracting unit operable to roughly extract an initial contour of the object; and

a dynamic contour extracting unit operable to accurately extract the final contour by using the initial contour extracted by said initial contour unit as an initial value and by applying an active contour model to the object within the ultrasound image;

wherein said automatic contour extracting unit is operable to perform the predetermined operation on the normalized ultrasound image to extract the final contour; and

wherein said image normalizing unit includes:

a condition storing unit operable to store the predetermined condition in advance;

a density converting unit operable to convert the density of the pixels by using a plurality of transform functions to generate a plurality of ultrasound images; and

a control judging unit operable to specify, out of the plurality of ultrasound images, an ultrasound image that satisfies the predetermined condition stored in said condition storing unit, and output the specified ultrasound image as a normalized ultrasound image.

48. (New) An image processing device that extracts a final contour of an object that is subject to examination from an ultrasound image, said image processing device comprising:

an automatic contour extracting unit operable to extract the final contour;

an automatic capacity calculating unit operable to calculate a capacity of the object by using the final contour extracted by said automatic contour extracting unit; and

a measurement display unit operable to display the capacity calculated by said automatic capacity calculating unit;

wherein said automatic contour extracting unit includes:

an initial contour extracting unit operable to roughly extract an initial

contour of the object; and

a dynamic contour extracting unit operable to accurately extract the final contour by using the initial contour extracted by said initial contour extracting unit as an initial value and by applying an active contour model to the object within the ultrasound image; and

wherein said measurement displaying unit is operable to display the capacity while leaving previously calculated capacities displayed to thereby display a transition of capacity over time.

49. (New) A program stored on a computer-readable medium, said program causing a computer to execute operations comprising:

roughly extracting an initial contour of the object by performing a predetermined operation on the ultrasound image;

accurately extracting a final contour of the object by using the initial contour extracted in said roughly extracting of the initial contour as an initial value and by applying an active contour model to the object within the ultrasound image;

calculating a capacity of the object by using the final contour extracted in said accurately extracting of the final contour; and

displaying the capacity calculated in said calculating of the capacity while leaving previously calculated capacities displayed to thereby display a transition of capacity over time.